Listening for those sounds from the deep

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By Rich Eldred
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Wellfleet -

Some people listen to progressive rock, some tune in talk radio but Rodney Rountree cocks his ear to the chattering of fish.

“We have the first recording of cod and haddock in North America,” the University of Massachusetts fish ecologist says with enthusiasm.

That might not be as remunerative as the first recordings of the Beatles but it intrigues Rountree.

“This is a whole component of undersea life we are clueless about. People don’t think to use sounds to study fish. A lot of that impression comes from Jacques Cousteau – ‘The Silent Sea.’ It’s not a silent sea. It’s a very noisy sea,” he declared.

Rountree, who also runs a consulting company, Marine Ecology and Technology Applications in Falmouth, will spread the word next Wednesday night at 7:30 at Wellfleet Bay Wildlife Sanctuary. He’ll also be playing some of his fish recordings. He has been studying the sounds of Nantucket Sound and the Gulf of Maine for the past five to six years.

“This has important applications for science or fisheries management,” he noted. “We drop a hydrophone over the side and listen. It’s very simple. Most of the things we hear we have no idea what they are.”

It’s not just that Rountree doesn’t speak fishspeak. It’s hard to tell who the speaker is.

“It’s been so poorly studied,” he lamented. “There are only a few fish we can easily identify.”

That’s a few more than most, unless they have scales.

“To give an example, when I first got interested in this work a few years ago I was taking trips to New Jersey to record a particular fish, the cusk eel. Then we discovered it here on Cape Cod. We started hearing its distinct call. It turned out it was quite common on the Cape and scientists didn’t even know that,” Rountree recalled.

With all those scientists working out of Woods Hole, how did they miss a common fish like the striped cusk eel?

“It’s strictly nocturnal, and nobody is out at night. It is buried under the sand during the day. I have colleagues who were sampling in Waquoit Bay and they never collected the animal. But you can go out on any night in the summer and it’s all over. It has a spring chorus like frogs. Since then they know where to look and they collect them now,” Rountree explained.

There were always sporadic cusk eel records dating back to the 1950s. Now it appears they’ve always been here in good numbers.

“That’s just an example of what you can do,” Rountree said. “One of the analogies I use is imagine a birdwatcher who never listened to birds. It never occurs to him to listen to birds chirping when he wants to find and record their activity.”

Of course even the casual observer can recognize a few birdcalls. How many people have heard the cusk eel’s mating call?

“This is an up and coming area in biology,” Rountree proclaimed. “I have a number of papers in press and I’ve held several workshops. We have been working also with commercial fishermen in Maine through a co-op program to study sound out on the fishing rounds. We’re getting data from many areas in the Gulf of Maine.”

So what are the fish talking about and why?

“There are a number of reasons, courtship, the males call to attract females,” Rountree said. “They call for territorial display or when they’re disturbed. People have been aware of this for a while.”

Fish calls are more basic than bird songs. Vocally they’re no match for catbirds or canaries.

“Fish have a sound signature, and you can ID them on that, but their repertoire of sounds is small compared to animals,” Rountree noted. “There is not quite the variety of sounds and it can be difficult to distinguish similar fish.”

Vocal stylings trend toward clicks, clucks, grunts, chirps or whines. Matching the fish with the noise is pretty basic. Rountree carts them into the lab, plops them into a tank and tries to get them to sound off. Most of the existing data on fish sounds dates to the 1950s when a researcher at University of Rhode Island did just that.

But trolling for “soniferous fish” has limitations as far as sampling what’s out there.

“Many fish do not make sounds,” Rountree noted. “And many fish do so for only certain reasons. Making sounds is a dangerous thing to do because there are predators out there.”

Nevertheless, there are some boisterous fish carousing the sea.

“One fish that makes sounds all the time is the toadfish,” Rountree said. “The cusk eel is very noisy. They have a good chorus. These are the two fish you hear all around the southern shore of Cape Cod. In the Gulf of Maine you hear from haddock and codfish. The long horned sculpin is one of the common sounds you hear. Fishermen call them buzz bombers. When they pick them up in the hand, they feel them vibrating like a grenade ready to go off.”

Another is the sea robin.

“When you catch a sea robin, they chatter back at you quite a bit. Weakfish is another sound producer. It’s a croaking sound,” Rountree noted.

Even crabs and lobsters make noises. All in all, this is a very fertile field for research.

“I had a grad student who hung a hydrophone off a dock in New York City and there were all kinds of sounds and we don’t know what they are,” Rountree pointed out. “Here is the industrial center of the world and you can go out and make new discoveries. There’s a whole world that’s not discovered and that’s what keeps bringing me back.”